# Epi Info

August 2002

**Trend in Low Birth Weight**
**A Key Health Status Indicator**

Low Birth Weight (LBW) has been defined as a birth weight of less than 2,500 grams. It is a critical measure of increased risk for infant mortality. In addition, LBW is associated with other detrimental long term health effects, such as cerebral palsy, mental retardation, and other developmental disabilities. In addition, economic burden for the care of LBW infants is almost twice that of normal healthy babies. Over the past decade, new cases of LBW have increased in the United States, State of Nebraska and Lancaster County.

One of the goals of Healthy People 2010 is to improve the health and well-being of women, infants, children and families.

This edition of Epi-Info examines the LBW data collected between 1990 and 2000. This dataset contains multiple births (twins, triplets, etc.) which is significantly associated with LBW. A discussion of trends by different demographic and maternal risk behavior characteristics, such as race, age, alcohol and smoking status of mother is provided.

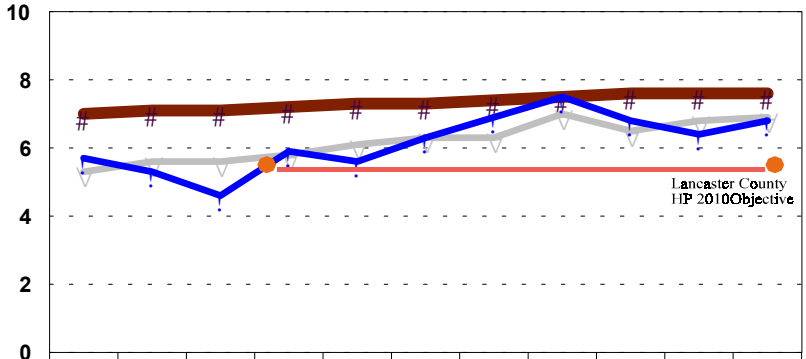
## Trend in Low Birth Weight

Figure 1 compares the trends in LBW for the United States, Nebraska and Lancaster County. Although Lancaster County continues to show a lower LBW rate than the rest of the country, it has gone up slightly in eleven years. The increase in LBW in Lancaster County went up from 5.7 percent in 1990 to 6.8 percent in 2000; whereas the State witnessed a jump from 5.3 percent to 6.9 percent between 1990 and 2000.

## Differences in Low Birth Weight by Race

The proportion of Black infants born at LBW was consistently higher than any other racial group (with exception in 1990 and 1992 when LBW number for American Indian was higher than that of Black).

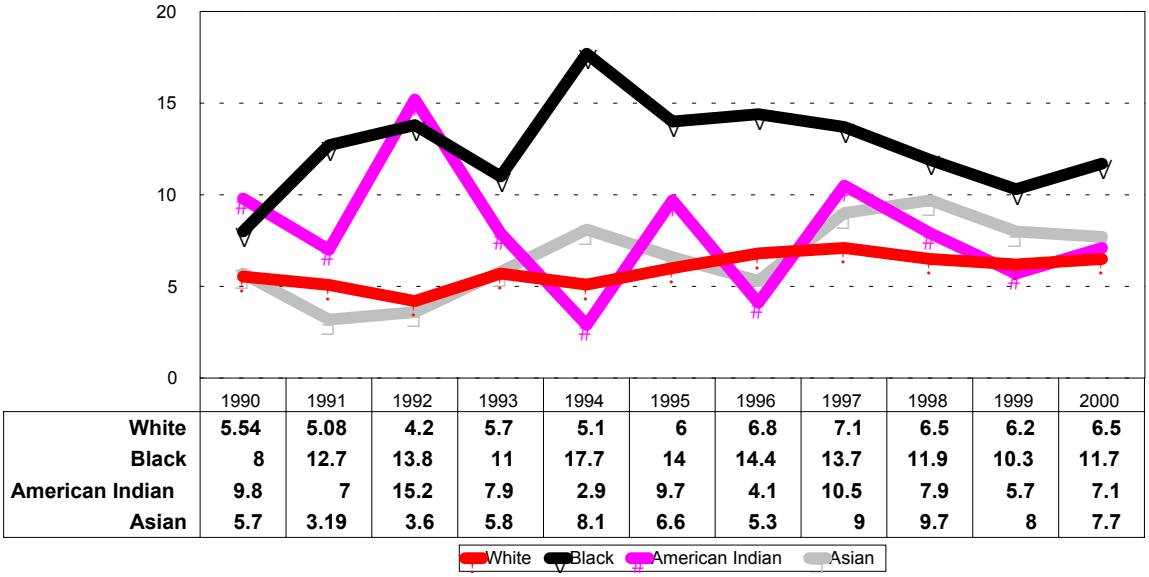
**Fig 1: Trend in Low Birth Weight***




| | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lancaster LBW | 5.7 | 5.3 | 4.6 | 5.9 | 5.6 | 6.3 | 6.9 | 7.5 | 6.8 | 6.4 | 6.8 |
| Nebraska LBW | 5.3 | 5.6 | 5.6 | 5.8 | 6.1 | 6.3 | 6.3 | 7 | 6.5 | 6.8 | 6.9 |
| National LBW | 7 | 7.1 | 7.1 | 7.2 | 7.3 | 7.3 | 7.4 | 7.5 | 7.6 | 7.6 | 7.6 |

*Percent of Live Birth

**Fig 2: LBW by Race**




| | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| White | 5.54 | 5.08 | 4.2 | 5.7 | 5.1 | 6 | 6.8 | 7.1 | 6.5 | 6.2 | 6.5 |
| Black | 8 | 12.7 | 13.8 | 11 | 17.7 | 14 | 14.4 | 13.7 | 11.9 | 10.3 | 11.7 |
| American Indian | 9.8 | 7 | 15.2 | 7.9 | 2.9 | 9.7 | 4.1 | 10.5 | 7.9 | 5.7 | 7.1 |
| Asian | 5.7 | 3.19 | 3.6 | 5.8 | 8.1 | 6.6 | 5.3 | 9 | 9.7 | 8 | 7.7 |

In 2000, 11.7 percent of Black infants born in Lancaster County were low birth weight. This was 6.5 percent for White, 7.1 percent for American Indian and 7.7 percent for Asian births.

Whites had the lowest rate for LBW among all races followed by Asians. However, overall LBW rates for Asians have gone up substantially since 1990. Rates for American Indian showed an inconsistent trend throughout the decade.

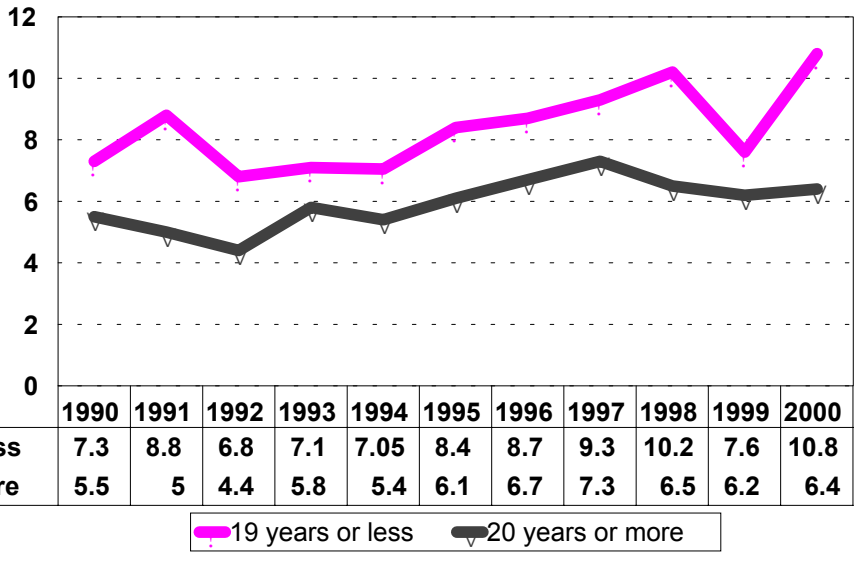
**Differences by Age of Mother**

The birth records (Fig.3) show that teen pregnancy is highly correlated with LBW. Mothers age 19 or younger consistently have a higher percentage of low weight births than mothers aged 20 years or more (Fig.3).

**Differences by the Smoking Status of Mother**

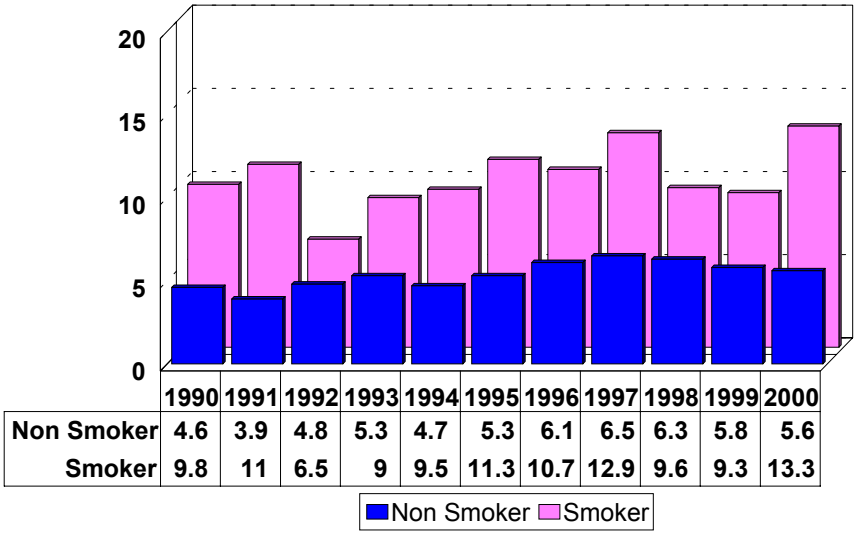
Ten years of birth data revealed that infants born to smokers were more likely to have low birth weight than were infants born to nonsmokers (Fig. 4).

**Fig 3: Trend in LBW by Mothers Age**




| | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 19 years or less | 7.3 | 8.8 | 6.8 | 7.1 | 7.05 | 8.4 | 8.7 | 9.3 | 10.2 | 7.6 | 10.8 |
| 20 years or more | 5.5 | 5 | 4.4 | 5.8 | 5.4 | 6.1 | 6.7 | 7.3 | 6.5 | 6.2 | 6.4 |

**Fig 4: LBW and Mother's Smoking Status**




| | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Non Smoker | 4.6 | 3.9 | 4.8 | 5.3 | 4.7 | 5.3 | 6.1 | 6.5 | 6.3 | 5.8 | 5.6 |
| Smoker | 9.8 | 11 | 6.5 | 9 | 9.5 | 11.3 | 10.7 | 12.9 | 9.6 | 9.3 | 13.3 |

Odds ratio (OR) was estimated for LBW in relation to in-utero exposure to maternal cigarette smoking by combining all 10 years data. This OR represents measures of the risk for these outcomes in women who smoked compared with nonsmoking women. The mothers who smoked during pregnancy were two times more likely to have a LBW baby than the mothers who did not smoke. Odds ratio for year specific data showed similar results (Table1).

**Table 1: Year Specific ORs for LBW and Smoking**

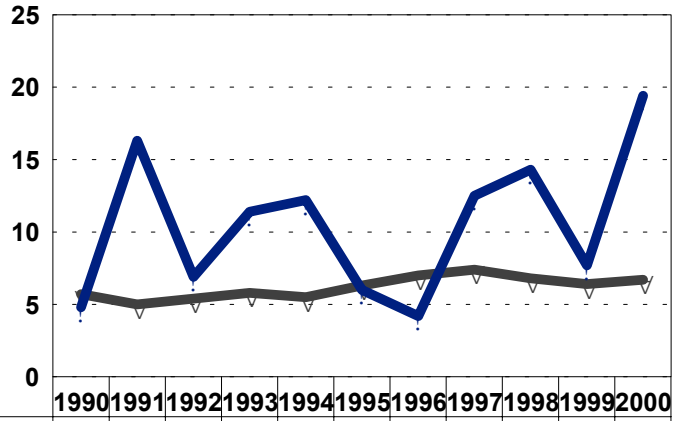
| Year | Odds Ratio* |
|---|---|
| 1990 | 2.3 |
| 1991 | 3 |
| 1992 | 1.6 |
| 1993 | 1.8 |
| 1994 | 2.1 |
| 1995 | 2.3 |
| 1996 | 1.8 |
| 1997 | 2.1 |
| 1998 | 1.6 |
| 1999 | 1.7 |
| 2000 | 2.6 |

** All ORs are statistically significant (p<.05)*

## Differences by Mother's Alcohol Use

Except for 1990 and 1996, a higher percentage of LBW babies were born to mothers who reported consuming alcohol during pregnancy than mothers who did not drink alcohol. However, unlike cigarette smoking, no statistically significant association between alcohol consumption and LBW was observed.

**Fig 5: LBW and Mother's Alcohol Use**

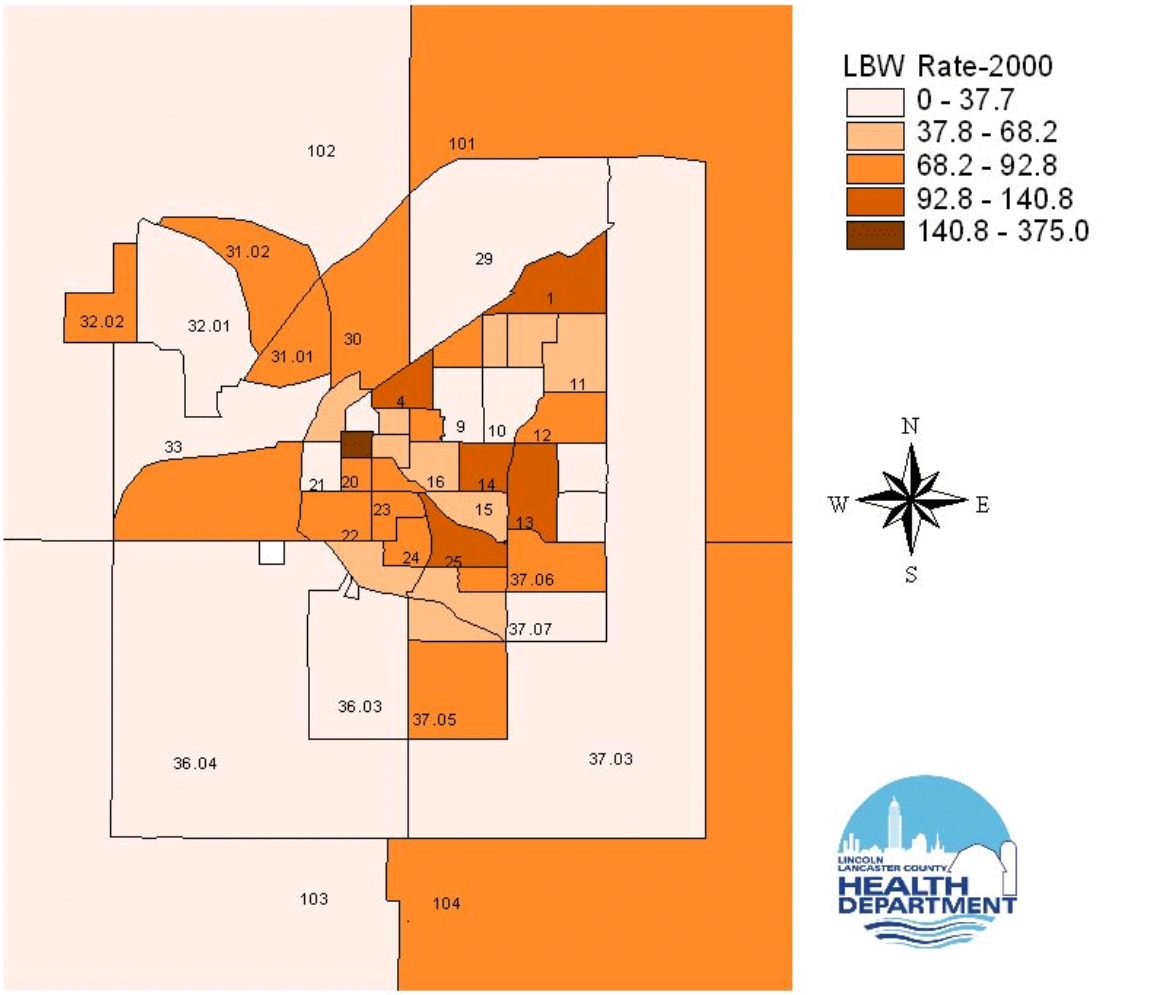



| | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Drank Alcohol | 4.8 | 16.3 | 6.9 | 11.4 | 12.2 | 6 | 4.2 | 12.5 | 14.3 | 7.7 | 19.4 |
| Did not Drink Alcohol | 5.7 | 5 | 5.4 | 5.8 | 5.5 | 6.3 | 7 | 7.4 | 6.8 | 6.4 | 6.7 |

## Difference by Census Tracts

Figure 6 shows the percentage of all infants born in 2000 at low birth weight by census tracts in Lancaster County. Census tract 19 (dark brown) had the highest percentage (14 % - 47 %) of LBW followed by census tracts 25,14,13 and 4 (9 % -14 %).

Fig 6: Percentage of All Infants Born at Low Birth Weight in Lancaster County-2000
Lincoln Lancaster County Health Department

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